What is claimed is:

1. A code-division multiple access (CDMA) receiver for de-scrambling and de-spreading a received signal having in-phase and quadrature components that was scrambled by a complex scrambling code into a first integrator input and a second integrator input, the received signal having in-phase and quadrature components, wherein the first integrator input and the second integrator input estimate a first and a second communication signal that were scrambled by first and second scrambling codes, respectively, the CDMA receiver comprising:

a summer for producing a sum signal by adding the in-phase and quadrature components of the transmitted signal;

a subtractor for producing a difference signal by computing the difference between the in-phase component and the quadrature component;

a selector for selecting one of the sum and difference signals to be an imaginary component based on the complex scrambling code and for selecting the one of the sum and difference signals not selected to be the imaginary component to be a real component;

a first selectable negation circuit for producing a first integrator input by selectively negating the real and imaginary components based on the complex spreading code and the first spreading code; and

a second selectable negation circuit for producing a second integrator input by selectively negating the real and imaginary components based on the complex spreading code and the second spreading code.

2. The CDMA receiver of claim 1, wherein the difference signal is equal to the in-phase minus the quadrature component.

3. The CDMA receiver of claim 2, wherein the imaginary component is selected as the sum signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of a different value, and the imaginary component is selected as the difference signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of the same value.

4. The CDMA receiver of claim 3, wherein if the imaginary component is selected as the difference signal, the imaginary component is negated.

5. The CDMA receiver of claim 1, wherein the difference signal is equal to the minus the quadrature in-phase component.

6. The CDMA receiver of claim 5, wherein the imaginary component is selected as the sum signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of a different value, and the imaginary component is selected as the difference signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of the same value.

7. The CDMA receiver of claim 6, wherein if the imaginary component is selected as the sum signal, the imaginary component is negated.

8. The CDMA receiver of claim 1, wherein the real and imaginary components are negated to produce the first integrator input if a bit of the real

component of the complex scrambling code and a corresponding bit of the first spreading code are of a different value.

9. The CDMA receiver of claim 1, wherein the real and imaginary components are negated to produce the second integrator input if a bit of the real component of the complex scrambling code and a corresponding bit of the second spreading code are of a different value.

10. A method of de-spreading a received signal having in-phase and quadrature components that was scrambled by a complex scrambling code into de-scrambled first and second communication signals, the received signal having in-phase and quadrature components, wherein the first and second communication signals were spread by first and second spreading codes, respectively, the method comprising:

producing a sum signal by adding the in-phase and quadrature components of the transmitted signal;

producing a difference signal by computing the difference between the in-phase component and the quadrature component;

selecting one of the sum and difference signals to be an imaginary component based on the complex scrambling code;

selecting the one of the sum and difference signals not selected to be the imaginary component to be a real component;

producing a first integrator input by selectively negating the real and imaginary components based on the complex spreading code and the first spreading code; and

producing a second integrator input by selectively negating the real and imaginary components based on the complex spreading code and the second spreading code.

11. The method of claim 10, wherein the difference signal is equal to the in-phase minus the quadrature component.

12. The method of claim 11, wherein the imaginary component is selected as the sum signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of a different value, and the imaginary component is selected as the difference signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of the same value.

13. The method of claim 12, wherein if the imaginary component is selected as the difference signal, the imaginary component is negated.

14. The method of claim 10, wherein the difference signal is equal to the minus the quadrature in-phase component.

15. The method of claim 14, wherein the imaginary component is selected as the sum signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of a different value, and the imaginary component is selected as the difference signal if a bit of the real component and a corresponding bit of the imaginary component of the complex scrambling code are of the same value.

16. The method of claim 15, wherein if the imaginary component is selected as the sum signal, the imaginary component is negated.

17. The method of claim 10, wherein the real and imaginary components are negated to produce the first integrator input if a bit of the real component of the complex scrambling code and a corresponding bit of the first spreading code are of a different value.

18. The method of claim 10, wherein the real and imaginary components are negated to produce the second integrator input if a bit of the real component of the complex scrambling code and a corresponding bit of the second spreading code are of a different value.